

REMARKS

By this Amendment claims 1 and 8 have been amended to better define the method and apparatus of the invention, and claim 5 has been simplified. Entry is requested.

In the outstanding Office Action the examiner has rejected claims 1-9 under 35 U.S.C. 103(a) as being unpatentable over Engebretson in view of Hansen and Gao et al.

This rejection cannot apply to the amended claims.

These three patents were discussed in the Amendment of August 9, 2006. It is believed that the examiner has misunderstood the disclosure in Engebretson. In this regard, Engebretson discloses the use of one, and only one adaptive filter 113. The filter 109 is not adaptive, and thus cannot participate in feedback cancellation. The passage referred to by the examiner in his response to arguments reads:

"Adaptive filter 113 is thus an example of a digital adaptive filter means, interconnected with the first means, for electronic processing of the filtered signal and second distinct signal to produce an adaptive output to the first means (017, 109, 111) to substantially offset the feedback contribution in the electrical output of the microphone means in the hearing aid, the digital adaptive filter means including

means for adapting only in response to polarities of signals supplied to and from said first means."

From this, it is understood that the adaptive filter produces an output to the signal path whereby this signal path comprises the adder 017, the filter 109 and the adder 111. Each of the adder 017, the filter 109 and the adder 111 are static during operation of the hearing aid so that they do not change their mode of operation from one instant to the next. The delivery of the signal from the adaptive filter 113 into the signal path at summation point 017 causes a substantial offsetting of the feedback contribution in the electrical output of the microphone as further explained. The further statement that "the digital adaptive filter means including means for adapting only in response to polarities of signals supplied to and from said first means" is simply to the effect that the adaptation of the filter happens only in response to signals supplied to and from the "first means" and that is already identified as the signal path comprising adder 017, filter 019 and adder 111. Thus, there is no indication in this passage which would imply that the filter 109 in Engebretson is an adaptive feedback cancellation filter. Also, throughout the remainder of the document it is clearly disclosed that the filter 113 is the adaptive filter and whereto a filter coefficient adaptation scheme is connected, and that filter 109 is the hearing aid filter which is a static filter being set at the beginning of operation of the hearing aid. The

adaptive filter 113 will as a result of the changing coefficients change its mode of operation from one instant to the next based on the new filter coefficients being installed continually. Engebretson is not relevant for the claimed invention as only one adaptive filter is provided and no additional adaptive filter is disclosed.

This being the case, it would not have been obvious to a person of ordinary skill in the art to use the feedback detection means of Hansen in the invention of Engebretson as asserted by the examiner, and further such use of feedback detection means in connection with the disclosure of Engebretson would not lead to the invention. The additional adaptive feedback cancellation filter would not come about by such a combination.

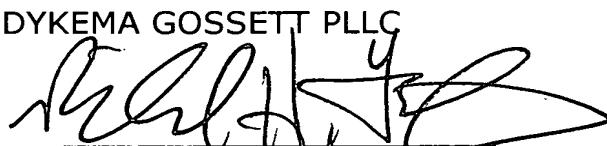
Also, in the Gao et al. there is no trace of an additional adaptive feedback cancellation filter. Gao et al. are concerned with ways of band pass filtering the signal entering the feedback cancellation filtering process. Such a band pass filtering necessitates measurements of the feedback path prior to use of the hearing aid in question, but may lead to simpler and more effective cancellation as explained in column 1, lines 53-67. According to the present invention as presented in the amended claims, prior measurements of the feedback path are not necessary, and in order to obtain stable operation of the feedback cancellation scheme, low frequency signals from the hearing aid signal path are prevented from entering the LMS algorithm. This cannot be deducted from Gao et al. Even if use of a high pass filter is an obvious alternative to the disclosure

of the band pass filtering of Gao et al., such a high pass filter used in connection with the disclosure of Engebretson would not suggest the invention, as there would not in any of these documents be any trace of an additional adaptive feedback cancellation filtering means used with a noise generator for providing low-frequency input for the LMS algorithm. This low-frequency input is to be supplied in lieu of the low-frequency signal parts removed by the before mention high pass filtering means of the hearing aid signal as is explained in the specification of this application.

It is believed that independent claims 1 and 8 define an invention which is both novel and unobvious over the prior art.

Favorable reevaluation is requested.

Respectfully submitted,

DYKEMA GOSSETT PLLC  
  
By: Richard H. Tushin  
Richard H. Tushin  
Registration No. 27,297  
1300 I Street, N.W., Ste. 300 West  
Washington, DC 20005-3353  
(202) 906-8680